AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An image read-out method of obtaining an image signal bearing thereon image information by use of a stimulable phosphor sheet having a layer of stimulable phosphor which emits stimulated emission in proportion to the stored energy of radiation upon exposure to stimulating light and a solid image sensor having a photoconductive material layer which exhibits electric conductivity upon exposure to the stimulated emission from the stimulable phosphor sheet and by scanning with stimulating light a stimulable phosphor sheet which has been exposed to radiation and has stored thereon an image, causing the photoconductive material layer to be exposed to stimulated emission emitted from the stimulable phosphor sheet upon exposure to the stimulating light, and detecting electric charges generated in the photoconductive material layer upon exposure to the stimulated emission by applying an electric field to the photoconductive material layer, wherein the improvement comprises that

said stimulable phosphor sheet has a layer of stimulable phosphor which is stimulated by stimulating light in a wavelength range of not shorter than 600nm and emits stimulated emission in a wavelength range of not longer than 500nm,

said solid image sensor has a photoconductive material layer whose major component is a-Se, and

said electric field is such as to generate an avalanche amplification effect in the photoconductive material layer,

further comprising an array of spaced apart electrodes disposed in a first direction and a second electrode structure ~~direction perpendicular to the first direction~~, said second electrode structure comprising at least one of planar electrodes and second electrodes disposed in a second direction perpendicular to the first direction, and

wherein the electrodes disposed in the first direction are separated by a pixel element pitch, so that each electrode in the first direction is in a one-to-one correspondence with a picture element and wherein the electrodes disposed in the first direction and the second electrode structure are disposed on ~~both~~ opposite sides of the photoconductive material layer.

2. (original): An image read-out method as defined in Claim 1 in which said photoconductive material layer of the solid image sensor is not smaller than 1μm and not larger than 100μm in thickness.

3. (original): An image read-out method as defined in Claim 2 in which said photoconductive material layer of the solid image sensor is not smaller than 10μm and not larger than 50μm in thickness.

4. (original): An image read-out method as defined in Claim 1 in which fluctuation of the image signal due to fluctuation in the electric field applied to the photoconductive material layer is suppressed.

5. (currently amended): An image read-out system comprising

a stimulating light source which emits stimulating light in a wavelength range of not shorter than 600nm,

a stimulating light scanning means which causes the stimulating light emitted from the stimulating light source to scan a stimulable phosphor sheet having a layer of stimulable phosphor which emits stimulated emission in a wavelength range of not longer than 500nm in proportion to the stored energy of radiation upon exposure to the stimulating light,

a solid image sensor having a photoconductive material layer the major component of which is a-Se and which exhibits electric conductivity upon exposure to the stimulated emission from the stimulable phosphor sheet,

an electric voltage imparting means which imparts an electric voltage to the photoconductive material layer of the solid image sensor to apply such an electric field as to generate an avalanche amplification effect in the photoconductive material layer, and

an image signal obtaining means which detects electric charges generated in the photoconductive material layer of the solid image sensor when the stimulable phosphor sheet is exposed to the stimulating light and stimulated emission emitted from the stimulable phosphor sheet impinges upon the photoconductive material with an electric voltage imparted to the photoconductive material layer by the electric voltage imparting means to apply said electric field as to generate said avalanche amplification effect in the photoconductive material layer, and detects an image signal representing an image stored on the stimulable phosphor sheet,

further comprising an array of spaced apart electrodes disposed in a first direction and a second electrode structure, said second electrode structure comprising at least one of: planar

electrode and spaced apart electrodes disposed in a second direction perpendicular to the first direction, and

wherein the electrodes disposed in the first direction are separated by a pixel element pitch, so that each electrode in the first direction is in a one-to-one correspondence with a picture element, and wherein the electrodes disposed in the first direction and the second electrode structure are disposed on ~~both~~ opposite sides of the photoconductive material layer.

6. (original): An image read-out system as defined in Claim 5 in which said photoconductive material layer of the solid image sensor is not smaller than 1μm and not larger than 100μm in thickness.

7. (original): An image read-out system as defined in Claim 6 in which said photoconductive material layer of the solid image sensor is not smaller than 10μm and not larger than 50μm in thickness.

8. (original): An image read-out system as defined in Claim 5 further comprising a fluctuation suppressing means which suppresses fluctuation of the image signal due to fluctuation in the electric field applied to the photoconductive material layer.

Claims 9. - 58. (canceled).

59. (previously presented): The image read-out system of claim 8 wherein the fluctuation suppressing means corrects the image signal according to the fluctuations of a voltage power source during read-out of the image signal, said voltage power source generating said electric field.

Claims 60. - 61. (canceled).

62. (currently amended): An image read-out method of obtaining an image signal bearing thereon image information by use of a stimulable phosphor sheet having a layer of stimulable phosphor which emits stimulated emission in proportion to the stored energy of radiation upon exposure to stimulating light and a solid image sensor having a photoconductive material layer which exhibits electric conductivity upon exposure to the stimulated emission from the stimulable phosphor sheet and by scanning with stimulating light a stimulable phosphor sheet which has been exposed to radiation and has stored thereon an image, causing the photoconductive material layer to be exposed to stimulated emission emitted from the stimulable phosphor sheet upon exposure to the stimulating light, and detecting electric charges generated in the photoconductive material layer upon exposure to the stimulated emission by applying an electric field to the photoconductive material layer, wherein the improvement comprises that

said stimulable phosphor sheet has a layer of stimulable phosphor which is stimulated by stimulating light in a wavelength range of not shorter than 600nm and emits stimulated emission in a wavelength range of not longer than 500nm,

said solid image sensor has a photoconductive material layer whose major component is a-Se,

wherein said electric field generates an avalanche amplification effect in the photoconductive material layer, and detecting electrical charges generated in the photoconductive material layer occurs simultaneously with the avalanche effect,

further comprising an array of spaced apart electrodes disposed in a first direction and a second electrode structure, said second electrode structure comprising at least one of: planar electrodes and spaced apart electrodes disposed in a second direction perpendicular to the first direction, and

wherein the electrodes disposed in the first direction are separated by a pixel element pitch, so that each electrode in the first direction is in a one-to-one correspondence with a picture element, and wherein the electrodes disposed in the first direction and the second electrode structure are disposed on ~~both~~ opposite sides of the photoconductive material layer.

63. (canceled).

64. (previously presented): The method of claim 1, wherein the array of spaced apart electrodes are spaced apart in the first direction and spaced apart in the second direction.

65. (previously presented): The system of claim 5, wherein the array of spaced apart electrodes are spaced apart in the first direction and spaced apart in the second direction.

66. (previously presented): The method of claim 62, wherein the array of spaced apart electrodes are spaced apart in the first direction and spaced apart in the second direction.

67. (previously presented): The method of claim 1 wherein a pitch of the pixel elements is in one-to-one correspondence to a pitch of electrodes.

68. (previously presented): The system of claim 5 wherein a pitch of the pixel elements is in one-to-one correspondence to a pitch of electrodes.

69. (previously presented): The method of claim 62 wherein a pitch of the pixel elements is in one-to-one correspondence to a pitch of electrodes.

70 (new). The apparatus of claim 65, wherein the electric voltage imparting means applies the electric field to the spaced apart electrodes in the first direction and the spaced apart electrodes in the second direction to generate the avalanche effect.

71 (new). The apparatus of claim 70, wherein the spaced apart electrodes in the first direction and the spaced apart electrodes in the second direction each physically touch the photoconductive material.

72 (new). The apparatus of claim 1, wherein the stimulable phosphor sheet stores a latent image based on the energy of radiation upon exposure, without application of voltage to the stimulable phosphor sheet structure.